## INSTITUTE DATA

***FORUM PARTICIPANT***

Yoshio Mimura

***INSTITUTE NAME***

Building Research Institute

***INSTITUTE AFFILIATIONS***

Ministry of Construction

***POSTAL ADDRESS***

Building Research Institute
Ministry of Construction
1 Tatehara, Tsukuba,
Ibaraki 305, Japan

***STREET ADDRESS***

Building Research Institute
Ministry of Construction
1 Tatehara, Tsukuba,
Ibaraki 305, Japan

***LOCATIONS***

1 Tatehara, Tsukuba, Ibaraki

TELEPHONE 81+(298) 64-2151
FAX 81+(298) 64-2989
E-MAIL mimura@kenken.go.jp

***ENTRY DATE***

August 1996

***STAFF NUMBERS***

117 (14 for fire research)

***FUNDING***

¥2,738M Annual

# CAPABILITY STATEMENT

***STRATEGIC OBJECTIVES OF RESEARCH***

| | |
|---|---|
| I. | The prevention of disasters |
| II. | The improvement of the living environment |
| III. | The rational organization of building production and the development of new building technologies |
| IV. | The effective use of energy and resources |
| V. | The promotion of international cooperation |

***CAPABILITY AREAS***

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|---|---|
| I. | Fire Properties of Materials |
| II. | Fire Resistance |
| III. | Fire Physics and Chemistry |
| IV. | Smoke Movement and Control |
| V. | Means of Escape |
| VI. | Fire Safety Design System |
| VII. | Regulatory Fire Tests |

***SPECIAL FACILITIES***

| | |
|---|---|
| I. | Full-scale/full load column, beam, floor/roof, and wall fire resistance furnace |
| II. | 7-story tower for evaluating smoke movement in high-rise buildings |
| III. | 720 sq.m floor area with 27 m high Burn Hall facility |
| IV. | A full-scale (2.7 m wide by 3.2 m high) radiant panel facility |
| V. | A full-scale (2.4 m wide by 3.6 m long by 2.4 m high) room test facility |
| VI. | 85 m by 100 m open field for full scale burn tests and urban fire tests under natural wind |

## RESEARCH PROGRAM

***RESEARCH PROJECTS (Titles and Objectives)***

Development of Assessment Methods of Fire Safety Performance

I. To develop rational fire testing method for building materials, structures and equipment.
II. To develop fire safety design methods with evaluating fire testing data.
III. To establish systems for the international standardization of fire safety performance assessment methods.

***RECENT RESEARCH HIGHLIGHTS***

I. Harmonization of fire test methods of building materials and structural elements.
II. Post earthquake fire.
III. Development of performance based fire safety design system.
IV. Development of rational code for means of escape in fire.
V. Prediction of thermal response of structures exposed to localized fires.

# COLLABORATION

***INTERNATIONAL LINKS***

| | |
|---|---|
| I. | U.S.-Japan National Resource Panel on Fire Research and Safety |
| II. | Collaborative research on flame spread of interior finishing materials with Sweden |

***RESEARCH OVERLAP WITH OTHER FORUM PARTICIPANTS***

| | |
|---|---|
| I. | |

***POTENTIAL COLLABORATION THROUGH FORUM***

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|---|---|
| I. | Smoke movement and control for large space |
| II. | Fire growth modeling |
| III. | Risk assessment modeling for high-rise building |
| IV. | Fire safety design system |
| V. | Harmonization of fire test methods including test methods for burning of interior finish and fire resistance. |
| VI. | Post earthquake fire |
| VII. | Methods of mutual appraisal of regulatory fire test results. |

## KEY RESEARCH STAFF

| *NAME* | *E-MAIL* | *PHONE* | *FAX* |
|---|---|---|---|
| T. Goto | t5atama@kenken.go.jp | (298)64-6764 | (298)64-6770 |
| I. Hagiwara | hagiwara@kenken.go.jp | (298)64-6675 | (298)64-6775 |
| Y. Hasemi | hasemi@kenken.go.jp | (298)64-6669 | (298)64-6775 |
| Y. Hayashi | hayashi@kenken.go.jp | (298)64-6686 | (298)64-6775 |
| K. Harada | harada@kenken.go.jp | (298)64-6634 | (298)64-6775 |
| A. Hokugo | hokugo@kenken.go.jp | (298)64-6682 | (298)64-6775 |
| H. Masuda | hmasuda@kenken.go.jp | (298)64-6763 | (298)64-6770 |
| Y. Mimura | mimura@kenken.go.jp | (298)64-2151 | (298)64-2989 |
| T. Motegi | motegi@kenken.go.jp | (298)64-6765 | (298)64-6775 |
| K. Nakamura | nakamura@kenken.go.jp | (298)64-6688 | (298)64-6770 |
| I. Nakaya | nakaya@kenken.go.jp | (298)64-6767 | (298)64-6770 |
| T. Tanaka | tanaka@kenken.go.jp | (298)64-6687 | (298)64-6775 |
| T. Yamana | yamana@kenken.go.jp | (298)64-6670 | (298)64-6775 |
| S. Yusa | yusa@kenken.go.jp | (298)64-6667 | (298)64-6775 |
| M. Yoshida | myoshida@kenken.go.jp | (298)64-6766 | (298)64-6770 |

## RECENT PUBLICATIONS


Tanaka, T.; Kumai, S. “Experiments on smoke behavior in cavity space” *Fire Safety Science Proceedings of the 4th International Symposium (Ottawa, Canada, 1994)*, pp.289-300, 1994.

Hasemi, Y.; Yoshida, M.; Yasui, N.; Parker, W.J. “Upward flame spread along a vertical solid for transient local heat release rate” *Fire Safety Science Proceedings of the 4th International Symposium (Ottawa, Canada, 1994)*, pp.385-396, 1994.

Hagiwara, I.; Tanaka, T. ”International comparison of fire safety provisions for means of escape” *Fire Safety Science Proceedings of the 4th International Symposium (Ottawa, Canada, 1994)*, pp.633-644, 1994.

Hokugo, A.; Yang, D.; Hadjisophocleous, G.V. “Experiments to validate the NRCC smoke movement model for fire risk-cost assessment” *Fire Safety Science Proceedings of the 4th International Symposium (Ottawa, Canada, 1994)*, pp.805-816, 1994.

Hasemi, Y.; Yokobayashi, Y.: Wakamatsu, T; Ptchelinstev, A.V. “Fire safety of building components exposed to a localized fire”, *Proceedings of the first international ASIAFLAM conference 1995*, pp.351-361, 1995.

Suzuki, H. “Fire Spreading Routes and Measures against fire”, *‘94 Asian Fire Science Seminar*, 19, Bali, 1994.

Suzuki, H. “The Current Status of Fire Research / Development Program and the Future Trend of Fire Standards in Japan”, ???